

**Achievement of Market-Friendly Initiatives and Results Program
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**The Jordan Medical Services Cluster
Preliminary research for the work on the
Medical Services Cluster**

Final Report

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Executive Summary

Medical Services Cluster

The purpose of this report is to gather the existing data available for the Medical Services Sector, prepare a map for the cluster highlighting the key characteristics and salient features, and refine the scope of work prepared by AMIR for the medical cluster analysis.

The roadmap and features of the sector shall provide a guideline for the analysis that needs to be conducted for the competitiveness model at the second stage. The second stage analyses would mainly look at medical services as a tradable service in the local and international markets, and has the objective of developing policies to increase the trade and medical tourism of Jordan.

Cluster Overview

The medical care service cluster in Jordan is one of the most important sectors for the government of Jordan. The allocated budget for the Ministry of Health for the year 2002 was projected at JD 191 million, this is in addition to JD 56 million allocated for the Royal Medical Services.¹

The total Health Care services expenditures for the year 2001 was estimated at JD 491 million. Jordan spends 8.3% of GDP on health which is higher than the majority of middle income countries and some industrialized nations. Jordan's expenditure on health as a percentage of GDP is the highest in the region after Lebanon.² With an estimated population of 5.1 million, the average health care expenditures per capita reached JD 95 for the year 2001.³ As the population of Jordan ages, the health care expenditures are also expected to rise.

The main health care service providers are: the public sector; Ministry of Health (MOH), and the Royal Medical Services (RMS), semi-public-private sector; Jordan University Hospital (JUH), King Abdullah University Hospital (commenced operations in 2002), and the Private Sector. Both the public and private sectors provide health care services through clinics and hospitals distributed around the country. Although, the medical services sector has successfully attracted regional patients, the sector remains "domestic oriented" rather than "export oriented".

The total number of hospitals in Jordan for the year 2001 reached 91 with 8,982 beds. King Abdullah University hospital started operation in the year 2002 with 657 beds. The estimated total number of beds should be around 9,639 beds for the year 2002.⁴

The total number of physicians employed in the various segments of health care service providers for the year 2001 is estimated at 10,627.⁵ The total number of physicians registered in the Jordan's Professional Doctors' Association reached 13,256 in the year 2001.⁶ The difference

¹ General Budget Law for the year 2002. Ministry of Finance.

² Jordan: Medical Services Sector, Andersen. October 2001

³ Annual Statistics Book, MOH, 2001

⁴ Annual Statistic Book, MOH, 2001

⁵ Annual Statistics Book, MOH, 2001.

⁶ Professional Doctor's association, 2001.

between the total number of employed physicians and unemployed physicians is a result of brain drain to regional market and/or unemployment.

The ratio of persons per resource for the year 2001 is: 1 physician for 488 persons, 1 dentist to 1806 persons, 1 nurse (nurse assistant, legal nurse and midwives) for 364 persons, one pharmacist for 1039 persons and one bed for 577 persons. The physician per population is higher in Jordan than most in the region including GCC, Syria and North Africa. While the number of nurses per physicians in Jordan is slightly lower than the regional average.⁷

Key Features

This section summarizes key findings of this preliminary desk and field research. A more in depth analysis is required to verify these features.

- ❖ The government of Jordan is keen on increasing the size of medical tourism in Jordan. During the past two weeks, the government's different ministries have published numerous articles in the local news papers, discussing the potential of this sector and their hopes to improve the size of exports. The MOH, the Ministry of External Affairs, Jordan Tourism Bureau and Pharmacists' association contributed to these articles. The ministry of Industry and Trade has initiated this research effort.
- ❖ Although, there is a collective interest to improve the medical services exports, there is no collective approach, nor dialogue between the different interested parties. This is evident not only inside the public sector, but also public to private, and private to private.
- ❖ The cluster is regulated by one of the most important ministries (MOH), the most powerful lobbying association in the country (Jordan's Professional Doctors' Association), and one of the strongest exporting sectors in Jordan (pharmaceuticals). The cluster has the potential to be extremely powerful if all related parties developed a collective approach regarding the improving and exporting of health care services.
- ❖ The Private Sector Hospital Association has no clout. The private sector hospitals are regulated by Private hospitals regulations # 85. The regulation mainly deals with licensing and physical or technical requirements, more than professional requirements.
- ❖ The Ministry of Health is the regulatory body for the health care services cluster and a major health care service provider. The RMS, was established not only to provide health care services, but also to develop the R&D and expertise of the whole sector. RMS distinctive services put Jordan on the regional map and elevated the sector to new heights during the seventies and eighties.
- ❖ Today, both the MOH and RMS hospitals operate over capacity, while the private sector hospitals are under utilized. The Ministry of Health recently started to contract out their services to the private sector on "Fee per Services" basis. Experts in the field believe that the "Diagnostic Related" approach is a better mechanism of contracting out the work. The diagnostic referral system entails contracting out business in accordance to diagnosis. i.e. all kidney cases would be referred to a specific hospital.

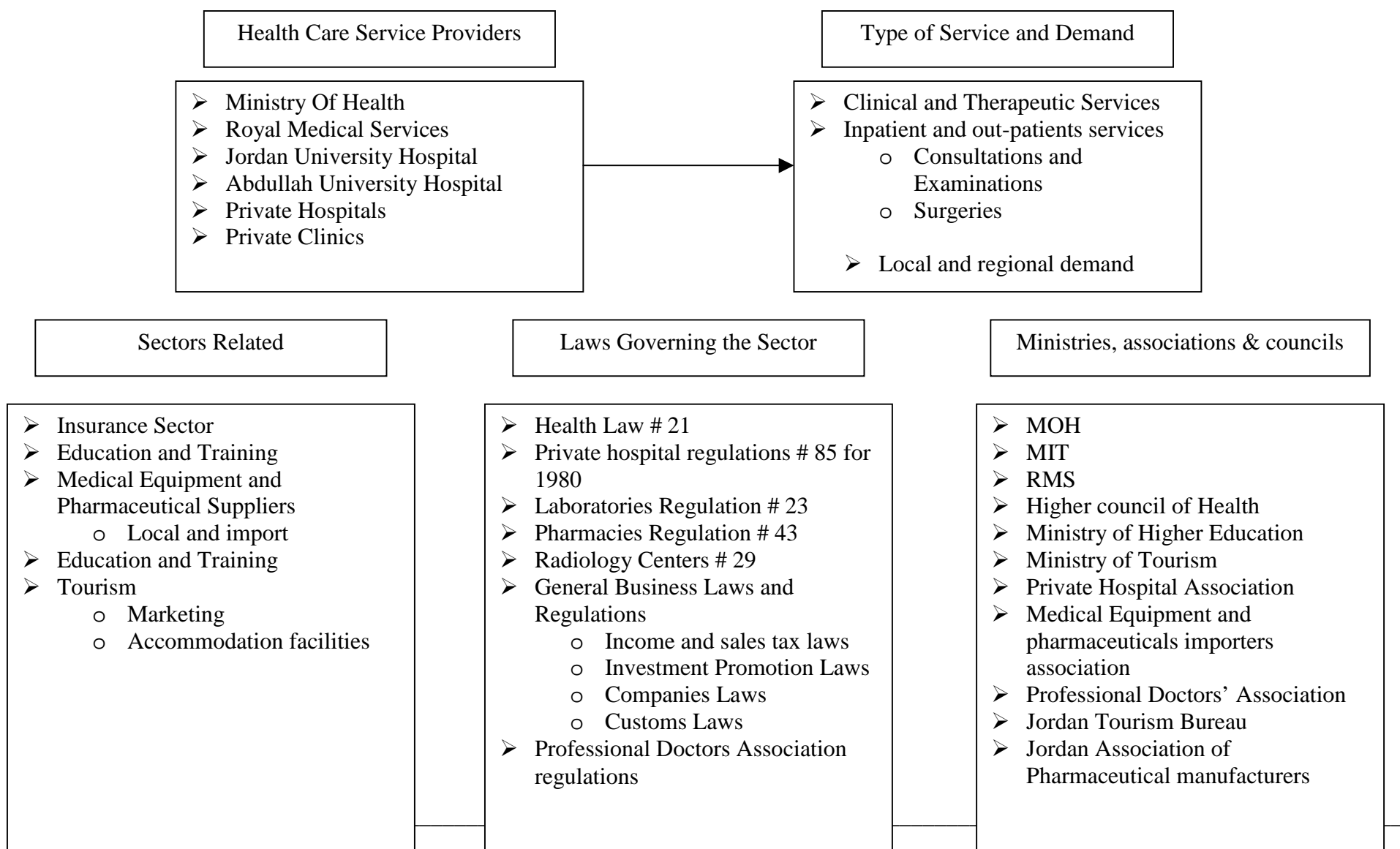
⁷ Jordan: Medical Services Sector, Andersen, October 2001.

- ❖ The sector boasts a high number of qualified medical professionals, competitive labor cost, and good connectivity with regional and international markets.
- ❖ Although the number of healthcare service providers has increased, the sector needs to increase the degree of specialization. Very few specialty hospitals are operating in the cluster.
- ❖ Medical equipments are technologically advanced and abundant in private hospitals. Administrative and financial systems are not conforming with international standards and therefore, it is difficult to assess performance and success rates.
- ❖ No accreditation or certification system for hospitals or assisting professional staff is visible.
- ❖ Low nursing to physician ratio.
- ❖ The pricing and fees for the whole cluster are regulated.
- ❖ The sector has witnessed increasing demand from regional patients. The cluster's main competitive advantages include: competitive prices, distinguished Healthcare services, and proximity to regional markets with no language barrier.
- ❖ The cluster is facing emerging competition from Saudi Arabia, Lebanon, and even Iraq.

Cluster Road Map

The following section outlines the Medical Cluster Road map. The road map identifies the main health care care service providers, type of service and demand, Sectors related, Laws governing the cluster and the different ministries, councils, association and boards participating in this cluster. The following section highlights the key features and characteristics of this cluster.

Medical Services Cluster Road Map



Health Care Service Providers

Health care services are provided by the public sector which includes the Ministry of Health (MOH) and the Royal Medical Services (RMS), semi public- private institutions which include Jordan University Hospital and King Abdullah Hospital and the private sector. Medical services are provided through two main channels, clinics and hospitals.

The different private and public sector clinics offer considerable services to this sector. Although, there is no specific published data regarding the activities of private sector clinics, the role of clinic consultancy provided by the specialist physicians of the private sector should not be neglected, as it provides a back bone of expertise which should be capitalized on to further promote medical services exports.

Modern medicine services were first introduced to Jordan at the turn of the century with the first clinic being established in Salt in 1883, by the Church Missionary Society (CMS). Several projects by the private sector followed suit, but with great financial difficulties. The first government hospital was established in Amman in the year 1922. The first private sector hospital was established in Ajloun in 1924.⁸

During the next sixty years the total number of hospitals multiplied in Jordan, with an obvious lead to the public sector. In the year 2001, the total amount of hospitals in Jordan reached 91 establishments. The total number of beds provided by the whole sector is estimated at 8,982. MOH attained 37.4% of total beds available (23 hospital); the private sector accounted for 37.3% (52 hospitals), RMS 19.6% (9 hospitals), and Jordan University Hospital 5.8%.⁹ Table No.1, details hospitals capacity by type of health care service provider.

The greater area of Amman attained the lion's share with 4,984 beds, offering 25 beds for 10,000 persons. Irbid governorate number of beds reached 1,167, offering 13 beds for 10,000 persons. The lowest bed per population ratio is in Balka governorate, offering 6 beds per 10,000 persons. The average bed per population is 17 for 10,000 persons.¹⁰ Table No. 2, details the geographic distribution of beds per governorate and their respective population ratios.

Occupancy rates for the different health care service providers differed. In the year 2001, occupancy rate for Royal Medical Services was the highest reaching 77.8%, the ministry of health occupancy rate was estimated at 76.4%, Jordan University at 56.2%, and the private sector hospitals occupancy rate was the lowest reaching 43.1%. Table No. 3 details the type of service and occupancy rates.

While the MOH and RMS hospitals are more distributed around the country, the bulk of private sector hospitals are located in Amman. It is estimated that over 75% of private hospitals' beds are in the Amman area; more than 50% of these beds are concentrated in the Western Amman area.¹¹

Private hospitals represent 60% of the total hospitals in Jordan, while their respective share of beds account only for 36.6 % of total beds in the market. According to Jordan Investment Board

⁸ Non-governmental hospitals, a private non profit model for equity and high standards, Dr. Nasri Khoury.

⁹ Annual Statistics Book, MOH 2001.

¹⁰ Annual Statistics Book, MOH, 2001.

¹¹ Summary of Findings: Private Hospitals in Jordan. Arab Bank Center for Scientific Research. April 2002.

figures the total size of investment for the past five years (1997-2001) in private hospitals reached JD 144.6 million for 22 new or expanded on projects. This includes both local and FDI.¹²

The low occupancy rates of the private hospitals and the high occupancy rates of the public sector, represent inefficient capital and resources utilization within the health care services sector as a whole high investment rate, coupled with low occupancy rates and therefore lower revenue, could yield to lower standards of services at the private sector, an area to watch out for.

Competition amongst health care service providers is high. The concentration of private hospitals in Amman area in general and Western Amman area in particular is expected to increase competition amongst the private sector enterprises. Meanwhile the public sector competes with the private sector hospitals. This is reflected by the high number of “able” and “non-beneficiaries” patients that utilizes the services of public sector hospitals, --- of total MOH admissions for the year 2001.

The low occupancy rates that are prevalent in the private sector are directly related to unplanned, fast growth in the sector, and low per capita income levels. The bed to person ratio in Jordan does not exceed the minimum international standards of countries with similar economic size and or higher income countries with distinguished health care services.¹³

The average size of investment is JD 6.5 million for hospital projects, which is considered low by international standards and reflects a smaller size of hospitals.

Private Sector Hospitals

The Arab Bank Center for Scientific Research, have recently concluded (April 2002) a policy oriented assessment for the Private Hospitals Sector in Jordan. The study evaluated the private sector hospitals technically, financially and conducted a patients’ satisfaction survey for the users of private hospitals. The study has identified the following strengths and weaknesses for the private sector hospitals.

The strengths: the availability of advanced medical equipments and technologies especially in larger hospitals; availability of skilled professional human resources; provision of more quality medicals services than the public sector; good image outside of Jordan, reflected by 32% of revenues generated by exportable services.

The weaknesses: an ineffective role of Private Hospital Association; liquidity and financial problems; shortage of qualified nurses; weak financial systems; weak relationship between private hospitals and insurance companies; less advanced equipments in smaller hospitals than larger hospitals; low occupancy rates and overlapping in services and resources offered; lack of skilled management and administrative systems; weak linkages and cooperation with other participants in the sector.¹⁴

¹² JIB. Department of facilitation and investors services

¹³ Summary of Findings: Private Hospitals in Jordan. Arab Bank Center for Scientific Research. April 2002.

¹⁴ Summary of Findings: Private Hospitals in Jordan.

Types of Services and Demand

Background

As mentioned above the health care services providers, offer inpatient and out-patient health care services through a score of clinics and hospitals around the country. The healthcare service product is composed of the basic physical clinic or hospital, medical equipments, pharmaceuticals, related examination and diagnostic facilities, administrative and management staff in addition to physicians and professional expertise which provide the back bone of this product. Jordan has established a distinguished reputation within the region, especially for its physician expertise.

The following section sheds some light over the types of services offered, expertise of physicians, and the profile of local and regional patients seeking services in Jordan.

Type of services offered

The type of services offered by the private and public sectors include:

1. In-patient and out-patient consultancy services and diagnosis
2. General surgeries
3. Specialized surgical services such as Minimal Invasive Surgeries, Endoscope and laparoscopic surgeries, the more complicated surgeries to include Open Heart, Neurosurgeries, and the implantation of organs, limbs and others.
4. ICU and CCU
5. Interventional CT and MRI
6. Medical Technology and diagnostic laboratories.
7. IVF
8. Specialized Ophthalmologist Centers
9. Cancer Center
10. Kidney Fund
11. Blood Bank

The hospitals sector (public and private), does not reflect a strong specialization trend. Most of the hospitals offer similar types of services and compete severely on the type of physical facilities, and the medical equipment that they have especially in the private sector. Private hospitals that have specialized services include: 1) Specialized Ophthalmologist Centers, 2) IVF Centers or hospitals, 3) Obstetrics and Gynecology and 4) Psychiatry and Rehabilitation.

Academic linkages and Training programs are also services that are provided by the health care services sector. The Jordan University Hospital and the King Abdullah Hospital provide very strong academic linkages programs to the University of Jordan and the Science and Technology University. The MOH and RMS provide training programs and curricula for registered and assistant nurses.

Laboratory and radiology centers are two other areas that need to be further investigated at a later stage within the competitiveness model.

Demand for Services

During the year 2001, the total number of out-patients visits amounted to 5 million in both the public, private and university hospitals. The total number of admitted patients was estimated at 587,345. The MOH share of the total admitted reached 44.9%, followed by the private sector at 31.9%.¹⁵

The total number of surgical operations was estimated at 206,243 operations, 38.7% of the operations were performed in the private sector followed by 37.2% by the MOH. This is not to include Obstetrics estimated at 133,706 operations of which 51.4% was performed at the hospitals of MOH and 29% by the private sector.¹⁶ Table No. 3 illustrates the type of services and occupancy rates of the different service providers.

The average length of stay in hospitals was highest at the JUH reaching 4.9 days, and the lowest was 2.6 days at the private hospitals. The variation in length of stay is highly correlated to the type of operations performed by these hospitals.¹⁷ Table No. 3, details the type of services and occupancy rates.

In 2001, the total number of operations performed by the private sector reached 79,748 surgeries. The General Surgery category, attained 23% of total surgeries, followed by Obstetrics (21.9%) and E.N.T at (11.6 %). Table No. 9, details the break down of Private Hospitals Surgical Operations.

While the break down of the type of operations performed by the public sector is not published, the allocation of beds per specialization at the MOH is detailed in table No. 7.

Human Resources

The professional staff for these health care service providers was grouped into six main categories by the Ministry of Health. These categories include Physicians, Dentists, Pharmacists, Registered nurses, Midwives and Assistant Nurses. In the year 2001, the total number of physicians that were employed by all the groups of service providers (MOH, RMS, JUH, Private, and UNRWA) was 10,627 doctors; total number of registered nurses was 7,290 and 5,638 assistant nurses. Table No. 4, details the human resources distribution by profession and service provider.

The ratio of persons per resource for the referred year 2001 is: 1 physician for 488 persons, 1 dentist to 1806 persons, 1 nurse (nurse assistant, nurse and midwives) for 364 persons, one pharmacist for 1039 persons and one bed for 577 persons.¹⁸ The physician per population is higher in Jordan than most of the region including GCC, Syria and North Africa. While the numbers of nurses per physicians in Jordan is slightly lower than the regional average.¹⁹

The total number of physicians registered in Jordan's Professional Doctors' Association reached 13,256 in the year 2001.²⁰ Sixty percent of the total number of doctors was General

¹⁵ Annual Statistics Book, MOH, 2001

¹⁶ Annual Statistics Book, MOH, 2001

¹⁷ Annual Statistics Book, MOH, 2001

¹⁸ Annual Statistics Book, MOH, 2001

¹⁹ Jordan: Medical Services Sector, Andersen, October 2001.

²⁰ Professional Doctors' Association of Jordan, 2001.

practitioners. Pediatrics' ranked second at 5.5%, Gynecologist and Obstetrics at 4.9%, Internists at 4.5% and Surgeons at 3.9%. For more details check table no. 10.

The mentioned figures reflect a relatively high rate of non-specialized physicians in the market. More specialized physicians and practices would strengthen the Jordanian product.

While the physician to person ratio was considered above the regional level, the nurses to physicians and to persons always lagged in Jordan. Three main reasons attributed to this trend: 1) the cultural perception of the nursing profession at the early stages of this sector development was not favorable, 2) the lack of certification and continuous training or education for this type of service, 3) the low wages for these professionals which resulted in a brain drain to other regional and international markets, mainly Saudi Arabia, UAE, Qatar, and Oman. This trend represents a weakness in the present health care service sector which requires immediate attention by the concerned parties.

Local Patients Coverage

The health care services sector is domestic oriented rather than export oriented. The majority of the demand is the local market, although the export market is gaining considerable attention by the private and public sectors.

While, the type of professional services demanded is determined by the needs of the patients, the choice of attaining these services by either the private or the public sector is determined by the patients' perceptions of quality services and their ability to pay the fees required. Given the relative low per capita income in Jordan, insurance coverage and fees play an important factor in the decision making process.

The Insurance Regulatory Commission estimates that the total number of people with medical insurance is 3.5 million, which is 68% of the total population. This is to include the MOH, RMS, UNRWA and Private sector. It is also estimated that 20% of the population are covered by more than one plan.²¹

This is in addition to Jordan's Social Security Department, mandatory workers' partial health care coverage for all enterprises employing more than 4 people. The total number of people that received benefits for the year 2001 was 17,442.²²

The MOH, RMS, JUH provide health care services to all members and beneficiaries of the government sector, the army, and members of the public that are "able" or "not able" to pay for their services. The private sector hospitals, provide service to all national and regional patients that are insured by the private sector or pay directly for services rendered.

During the year 2001, the MOH admissions amounted to 263,981 patients. The majority of the admitted patients (54%) were of the able category (non-government, non-army, non beneficiary and able to pay fees). The members and beneficiaries segments attained 24% of the total admitted number. For more details check table No. 8.

²¹ Jordan: Medical Services Sector, October 2001.

²² The Social Security Corporation.

The high admissions rate of the “able” segment to MOH hospitals reflects the degree of competition between the MOH and the private sector hospitals. The public sector recently developed a partnership program, to contract out their business to the private sector on a “fee per service” basis. This was viewed positively by members of this industry, however the “Diagnostic Related Grouping” was perceived as a better way to contract out the business and develop specialized entities, which thereafter can be monitored against specific standards.

Fees and Pricing

The Ministry of Health and RMS sets the prices for the different services that are provided by them. The Professional Doctors’ Association sets the fees for all physician services and is afterwards approved by the MOH. The private sector hospitals apply for price/fee approval for the services provided by their establishments, MOH has to stamp its’ approval. Therefore, the market is heavily price and/or profit controlled.

The fees charged for regional patients, are also set by the MOH and the private sector. The private sector and MOH have established a list of fees/prices brackets for incoming regional patients to be applicable for both the private and public sector hospitals.

The fees are the same whether, the patients is admitted to private or public hospitals. This mechanism was established to avoid the reported fees/price abuse to incoming patients. The setting of prices eliminates price competition, and places a heavier emphasis on the type of facilities offered by the different participants.

In the public sector, the expertise of the physicians is a very important variable to be considered, given the fact that physicians are full time staff of these hospitals. Meanwhile, the private sector hospitals do not usually have full time specialized physicians and are therefore, able to accommodate any consulting physician or surgeon. Better mix of specialized physicians for the patient.

The base for pricing strategies is reported to be outdated by the private sector. A more in depth analysis is required to determine the proper methodology of setting prices for services offered and fees charged by physicians.

Regional Demand

Jordan has enjoyed a distinguished reputation for its Health Cares Services within the region. More recently, the sector have been able to attract a considerable number of patients, seeking medical consultations and/or performing major operations within the private and public sector hospitals.

The estimated number of patients differed from one source to another. The Department of Statistic Survey in 1998, for “Arrivals and Departures and Purposes of Visit”, estimated the size of medical services tourism to be 86,065 visitors. However, this number includes patients and accompanying family members.

Andersen Consulting estimated, that in the past four years, Jordan hosted between 27,000 and 32,000 patients annually, with an average expenditures per patient totaling to USD 5,500.

The Ministry of Health estimates that the total size of regional patients was 100,000 in the year 2000, reached 111,000 in the year 2001 and is expected to be 126,000 in the year 2002. This total number was reached by MOH from several sources which include: 1) agreements reached by the public sector, 3) agreements reached by the private hospitals 4) embassies and 5) individual travelers.

The variation is a result of mixing accompanying family members with patients, duplication of numbers from different sources, and the mixing between actual demand and contracted agreement.

All these patients came from the neighboring Arab countries. This included Saudi Arabia, GCC, Yemen, Bahrain, North Africa (Tunis, Libya, Algeria, and Morocco), Sudan, Iraq, Palestine, and others.

According to MOH, Office for Arab Patients the: Top importing countries are: 1) Yemen, 2) Libya, 3) Sudan, 4) Bahrain. Most demanded services (ranked by demand), are: 1) Cardiology, 2) Neurology, 3) Orthopedic, 4) Ophthalmology, 5) Cancer cases, and 6) Kidney Cases

As mentioned above the fees charged are fixed by the MOH and with the agreement of the Professional Doctor's Association and the private sector. The fee for an Open Heart surgery was set at USD 11,000, Orthopedic cases range between USD 4,000 to 6,000; Ophthalmologist cases USD 4,000, Neurology and Neurosurgery between USD 7,000 to 20,000; Kidney removal USD 1,500, Kidney implantation USD 15,000 to 20,000.

Both the private and public sectors try to reach agreements with different countries or organizations to promote this sector aboard. While some private hospitals have managed to reach direct agreements with NGO's or associations abroad to promote their own services; the MOH reaches agreements to promote the public and private sectors.

MOH has a number of protocol agreements with neighboring Arab countries to exchange expertise, manage agreements and other related different issues. In addition MOH has reached agreements with a number of Arab countries to receive patients in all types of hospitals and clinics. As mentioned above the fees for these services are fixed and determined for the beneficiary ahead of time.

The selection of hospitals depends on the patient, but within a pre-selected and determined hospitals list. The importing country usually visits different hospitals, and selects a sample of hospitals that they wish to send their national citizens to. With the absence of price competition, the selection is based on either physical or professional factors. The incoming patients either settle their fees directly or through governments and organizations.

To facilitate this process and avoid abusive practices to this segment, the MOH and Private Hospitals Association have established two logistics offices at Queen Alia International Airport.

Related sectors

Industries related to this cluster include, the insurance sector, tourism industry, higher education and training, and the supplier sector (importers and producers) of pharmaceuticals, equipment, tools, furniture and furnishings. The following section highlights specific characteristics of insurance, higher education, tourism package and services and retail. A more in-depth analysis of these sectors is required at the second stage of this study, within the framework of the competitiveness model.

Insurance Sector

The total number of insurance companies operating in Jordan is 26 companies. A total of 19 companies have health insurance plans and are authorized to provide health insurance packages. In 2001, the estimated market size in value was JD 23 million. The actual claims were estimated at JD 19 million and outstanding claims at 3 million. This represents 16% of the total claims size for all insurance categories and companies in Jordan for the year 2001.

This sub-sector is therefore operating at a loss, once operating expenses are deducted. The principal reasons for this loss are the very tight profit margins for the health care services insurance companies and possible abusive practices of the beneficiaries.

The total number of beneficiaries insured by the private sector is 259,000 persons, which is 5% of Jordan's estimated population. The five top health insurance companies and their respective premiums share were: 1) Al Wataniah Ahlia Co. (15%), 2) Jordan International (10%), 3) Amman Insurance (9%), General Arab (7%) and Arab Orient (6%) of the health insurance market. The sector is small and distributed amongst numerous participants.

The different programs that are available include: 1) In-patient benefits, 2) Out-patient benefits, 3) additional benefits (dental, optical, etc...), 4) long term disability. All programs include in-patient benefits in addition to other categories if desired.

The insurance sector can play a critical role to increase the demand (occupancy rates) of health care service providers, especially the private sector. The sector size is small, and fragmented. A more in-depth analysis is needed to verify the sector can financially handle a greater number of insurers and therefore, play a more significant role in the market.

Education and Training

Perhaps one of the most important resources in this sector is the human element. Higher education and training institutes are of prime importance to keep the competitive edge that this sector has regionally. While the following section sheds some light over the existing universities and colleges offering needed programs, the second stage of this analysis needs to examine in closer details the types of programs, the continuous education and certification programs and means and ways to strengthen expertise linkages to Jordan.

Presently, there are three universities in Jordan that offer a Medicine Degree; The University of Jordan, the Science and Technology University, and Mu'tah University which started in the year 2000/2001. The total number of students enrolled in the Medicine program for the academic year 2001/2002 is 1,941 students.

The total number of students that graduated from Medicine school for the academic year of 2000/2001 was 225 students holding Bsc. and Msc. degree in Medicine. The Para-Medical Sciences Colleges graduates in 2000/2001 for both universities, was 486 students. The program includes nursing, medical technology programs and other related professions.

The Assistant Medicine Professions program which includes the nursing and other related programs are also offered at the different two year community colleges. The total number of students enrolled in these programs for the academic year 2000/2001 was 3,193 students. The total numbers of students who graduated and passed the comprehensive exams for the academic year 2000/2001 are 964 students. The total number of nursing program graduates is 190 students, medical laboratories 248, radiology technology 7, anesthesia and recovery 55, this is in addition to others.

The Jordan University Hospital and King Abdullah Hospital have very strong linkages to the University of Jordan and University of Science and Technology. The Medicine College(s) specializations are: General surgery, Internal Diseases, Pediatrics, Forensic, Family medicine, Toxicology, Obstetrics and Gynecology, ENT, Medical Laboratory Sciences, Anesthesiology, Orthopedic / surgery, Ophthalmology, Public health, Neurology / surgery, Uropathny and Pathology.

As mentioned before, the ratio of physicians to nurses was considered low in Jordan. This is coupled with a lack of certification system for the nursing staff to encourage continued developments and improvement of the nursing standards profession as a whole. Continuous education, improved academic linkages and certifications of related medicine professions is one of the areas that members of the healthcare community would like to see improve immediately.

Tourism

The tourism sector offers product packaging, logistics and accommodation services that are important to the regional patient coming to Jordan. For Clinical tourism, the sector offers packages to assist the patient find the needed health care service provider (hospital and clinics) and the accommodation package for accompanying family members. For Therapeutic tourism, Jordan offers a number of spots (Dead Sea and a number of hot mineral springs) that should be further developed to attract international tourists as in the case of Israel.

Most travel agents in Amman handle the different incoming medical tourists, with different types of programs. Some programs include the bookings of hotels and travels while others offer packages with health insurance and specific discounts. Only one agent is believed to be specialized in Clinical and Therapeutic Tourism. Packaging and logistics arrangements are well below international standards.

The tourism infrastructure, i.e. travel, connectivity, number of hotels and apartment hotels or suites are good. The sector offers in Amman, 102 hotel apartments, 19 hotel suites, 213 hotels

(11,950 rooms), within different categories or classifications catering to different income groups or needs.

Medical Equipment and Pharmaceuticals Suppliers

The association of medical equipments and pharmaceuticals suppliers estimates that the total number of participants in this sector is above 400 enterprises. This include the pharmaceutical producers, the pharmaceutical importers (Drug Stores), laboratories diagnostics equipment, medical equipment, clinical furniture, doctors' tools and all other related needs of the medical cluster. The sector handles all the purchasing of the local market including the public and private sector. The sector is reputed to be very efficient in handling all the needs of this sector. Agents for all the major equipments, pharmaceuticals companies and others are available.

Drug access and delivery for patients is a bundant in Jordan. The total number of pharmacies in Jordan reached 1,533 for the year 2000. Product mix include locally produced and imported drugs, in addition to beauty care and all kinds of infants related items.

Laws governing the sector

- ❖ General Health Law # 21
- ❖ Private Hospitals Regulation # 85 for 1980
- ❖ Laboratories Regulation # 23
- ❖ Radiology Center Regulation # 29
- ❖ Professional Doctor's Association regulation.
- ❖ General business laws and regulations
 - Income and sales tax laws
 - Investment promotion laws
 - Companies Laws
 - Customs laws

Ministries, associations and councils related to the cluster

- ❖ Ministry of Health
- ❖ Royal Medical Services
- ❖ Higher Council of Health
- ❖ Ministry of Industry and trade
- ❖ Ministry of Higher Education
- ❖ Ministry of Tourism
- ❖ Private Hospitals Association
- ❖ Professional Doctors' Associations
- ❖ Jordan Tourism Bureau
- ❖ Medical and Pharmaceuticals Suppliers
- ❖ JAPM

Key interviews – Next steps

This initial stage of investigation was conducted to provide the MIT and competitiveness model team members of the size of this cluster, the key characteristics and features, in addition to the related industries and clusters. A more in depth analysis is required to assess the future needs of the sector especially with the increasing local and regional demand, ways of bringing the different parties together and last but not least the development of a cluster strategy that would enhance the size of international trade.

While, the scope of the next work is mainly concerned with increasing the size of exports, the features of local market demand and supply cannot be marginalized as it shapes the type of product that Jordan offers. To build on what has already been identified at this stage, and analyze the cluster within Porter's five forces of competitiveness; more in-depth qualitative meetings should be conducted with a focus on: Firm strategy and rivalry, demand and conditions, factor conditions, supporting institutions, and the government.

The following table should provide a guideline to essential interviews that need to be concluded at the second stage.

Group	Participants
Health care service providers	<ul style="list-style-type: none"> • RMS, Directorate of Medical Services • Jordan University Hospital • Four private hospitals to include, specialized, non-specialized, non-for profit and for profit. Selection of hospitals should include large and medium size enterprises, and hospitals that have succeeded in concluding regional agreements. • Three main clinics / consulting physicians within the top five specialties that Jordan exports • Sub - total 9
Related Industries	<ul style="list-style-type: none"> • Health insurance company • Two suppliers 1) pharmaceutical producer 2) medical importer • University of Science and Technology/ King Abdullah hospital • Two Para-medical services colleges • Two travel agents handling medical tourism • Khalidi hotel suite • S. Total 8
Ministries, associations and boards	<ul style="list-style-type: none"> • Ministry of Health (3) Minister, Office for handling Arab patients at airport, and Office of Arab patients. • Private Hospital Association, Dr. Mahmod Taher • Member of the higher council of Health • Doctors' professional Association • Jordan Tourism Bureau • JEDCO • S. Total 9 • Total 26 meetings

Annex A

Statistical Tables

Table No. 1
Hospitals' Capacity

Health Care Service Provider	2000			2001		
	# of Hospital	# of Beds	% of Beds to Total	# of Hospitals	# of Beds	% of Beds to Total
Ministry of Health (MOH)	23	3,229	37.1%	26	3,357	37.4%
Royal Medical Services (RMS)	10	1,755	20.2%	10	1,760	19.6%
Jordan University Hospital (JUH)	1	509	5.8%	1	517	5.8%
Private Sector Hospitals	52	3,212	36.9%	54	3,348	37.3%
Total	86	8,705	100.0%	91	8,982	100.0%

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 2
Geographic Distribution of Hospitals

Governorate	Estimated Population	Total # Beds	MOH	RMS	JUH	Private	Rate per 10,000
Amman	1,971,750	4,984	928	1,033	517	2,506	25
Irbid	924,470	1,167	590	259	-	318	13
Zarqa	815,130	897	424	200	-	273	11
Balka	339,940	209	209	-	-	-	6
Mafrq	238,890	227	187	-	-	40	10
Karak	208,315	341	160	79	-	102	16
Jerash	152,350	135	135	-	-	-	9
Madaba	132,140	116	86	-	-	30	9
Ajloun	115,040	96	96	-	-	-	8
Aqaba	104,160	182	-	103	-	79	17
Maan	101,050	122	122	-	-	-	12
Tafeila	78,765	86	-	86	-	-	11
Total	5,182,000	8,562	2,937	1,760	517	3,348	17

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 3							
(a)							
Type of Services and Occupancy Rates							
Service provider	No. of Beds	Admissions		Average Length of Stay	Occupancy Rate	Out Patients Visits	
		#	%			#	%
MOH	3,357	263,981	44.9%	3.2	76.4	2,162,454	43.0%
RMS	1,760	114,406	19.5%	4.3	77.8	2,259,878	44.9%
JUH	517	21,601	3.7%	4.9	56.2	216,302	4.3%
Private Sector	3,348	187,357	31.9%	2.6	43.1	391,578	7.8%
Total	8,982	587,345	100.0%			5,030,212	100.0%
Source: Ministry of Health Annual Statistical Book, 2001							

Table No. 3 (b)				
Type of Services and Occupancy Rates				
Service provider	Surgical Operations	Deliveries		
	#	%	#	%
MOH	76,671	37.2%	68,749	51.4%
RMS	37,800	18.3%	23,728	17.7%
JUH	12,024	5.8%	2,492	1.9%
Private Sector	79,748	38.7%	38,737	29.0%
Total	206,243	100.0%	133,706	100.0%
Source: Ministry of Health Annual Statistical Book, 2001				

Table No. 4
Human resources distribution by profession and service provider

Profession / Provider	MOH	RMS	JUH	Private	UNRWA	Total	Rate per 10,000
Physician	2,967	842	275	6,461	82	10,627	20.5
Dentist	431	165	22	2,234	17	2,869	5.5
Pharmacists	213	89	17	4,666	2	4,987	9.6
Registered Nurses	1,963	870	358	4,061	38	7,290	14.1
Midwives	832	51	-	384	24	1,291	2.5
Assistant Nurses	3,082	1,692	189	539	136	5,638	10.9

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 5
MOH Budget (JD 1000)

MOH Budget (JD 1000)	2001	2000	1999	1998	1997
Total Government Budget	2,300,000	2,210,000	2,160,000	1,987,000	1,916,000
MOH Budget	137,270	131,000	120,774	116,167	106,819
MOH % of Total Budget	6.0	5.9	5.6	5.8	5.6

Source: Directorate of Finance and Accounting-
Ministry of Health

Table No. 6
Health Care Expenditures & GDP for 2001

Total Health Care Expenditures, JD	491,000,000
Average Expenditure / Person, JD	95
Estimated Total Population	5,182,000
GDP for Health Care Services, JD	6,258,800,000

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 7
MOH Bed Numbers Per Specialization

Specialization	Number of Beds	% of Total
Obstetrics and Gynecology	625	18.6%
Internal	506	15.1%
General Surgery	496	14.8%
Pediatrics	492	14.7%
Psychiatry	400	11.9%
Incubators	179	5.3%
Orthopedic	133	4.0%
ICU	82	2.4%
Specialized Surgery	76	2.3%
E. N. T.	67	2.0%
Pediatric Surgery	56	1.7%
Ophthalmology	48	1.4%
Chest	40	1.2%
Nuclear Medicine	37	1.1%
Talasimiah Patients	26	0.8%
CCU	26	0.8%
Burns and Plastic Surgery	24	0.7%
Medium Care	24	0.7%
Drug Addiction / Rehabilitation	20	0.6%
Total	3,357	100.0%

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 8
MOH Admissions per Insurance
Category

Type	Number	% of Total
Member	14,287	5.4%
Beneficiary	49,645	18.8%
Army	37,770	14.3%
Able	142,728	54.1%
Not Able	19,551	7.4%
Total	263,981	100.0%

Members are the Government employees

Beneficiaries are Public Sector (Government and Army) employees' family members

Able is non-Government, non-Army, non-beneficiary, and is able to pay fees

Not Able is non-Government, non-Army, non-beneficiary, and is not able to pay fees

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 9
Private Hospitals Surgical Operations 2001

Type of Surgery	Number	% of Total
General Surgery	18,311	23.0%
Cardiology	1,576	2.0%
Neurology and Brain	1,809	2.3%
Orthopedic	7,357	9.2%
Burns and Plastic Surgery	2,243	2.8%
Chest Surgery	355	0.4%
Urology	5,528	6.9%
Pediatric Surgery	1,547	1.9%
E. N. T.	9,247	11.6%
Ophthalmology	6,501	8.2%
Deliveries and Gynecology	17,453	21.9%
Dentistry (Mouth and Jaw)	592	0.7%
Others	7,229	9.1%
Total	79,748	100.0%

Source: Ministry of Health Annual Statistical Book, 2001

Table No. 10	
Physicians registered at the Professional Doctors' Association for the year 2001	
Specialization	Number
General practitioner	7,888
Surgeon	529
Internist	609
Gynecologist and Obstetrics	654
Pediatrics	735
Ophthalmologist	227
Orthopedic Surgeon	220
ENT Surgeon	209
Neurosurgery	49
Cardiothoracic	29
Plastic Surgeon	32
Psychiatry	60
Dermatologist Venereal	148
Neurology/nervous	27
Chest Medicine Specialist	61
GIT Specialist	31
Diagnostic Radiology	128
Anesthetic	237
Physiotherapist	37
Forensic	23
Family	74
Urinary Tact Infections	115
Cardiology	67
Laboratory	32
Other	1,035
Total	13,256
Sources : Professional Doctor's Association	

Annex B

Draft Scope of Work for Medical Services Cluster

Annex D - Scope of Work: Specific Tasks of the Consultant(s)

Activity: 512 Investment and Export Development Research and Policy
SOW Title: Medical Services Cluster Analysis
Modification: #1
SOW Date: 8 July 2002
SOW: Draft
Total LOE: 60
Task and Consultant: Mihir Desai/Hana Dajani/Health Care Services Export Strategy Consultant

I. Specific Challenges Addressed by this Consultancy

Accelerating direct investment is crucial to achieving higher rates of growth. Jordan is in the process of re-thinking its approach to attracting investment, both foreign and domestic. The creation of the Jordan Agency for Economic Development and the re-engineering of the Jordan Export Development Corporation and the Jordan Investment Board will go a long way to improving investment performance. A key objective of the AMIR 2.0 Program is to support investment promotion and to provide whatever technical assistance is required to achieve this goal. Pending the creation of JAED, investment and trade policy remains under the joint responsibility of the Ministry of Industry and Trade and the Investment Task Force.

In April 2002, the ITF presented to His Majesty a set of investment and trade policy and strategy recommendations, based on a Booz-Allen study which examined some 10 existing sectors and proposed immediate actions to improve the export and investment performance of these sectors. Terming them “Quick Fixes”, the study recommended sweeping reforms touching on tax codes, international agreements, regulatory and legal reforms, infrastructure development etc.

The potential danger in adopting these recommendations for “quick fixes” is that it may commit Government to a long-term course of action based on short-term considerations rather than in the context of a long-term set of policies and strategies. Such action could require the new JAED to focus to a large degree on undoing possible harmful consequences of these “quick fixes” instead of developing a coherent basis for national investment and trade policies and strategies.

II. Objective

The objective of this Consultancy is to produce a cluster analysis for medical services, in the context of AMIR work toward a national investment strategy that will help consolidate rigorous economic analysis into investment promotion through JAED. The

intention is for those who promote both FDI and DDI in Jordan to understand their task in the context of an investment strategy, with knowledge of Jordan's comparative advantages by industry and sector, and promote an incentive structure that will contribute to long-term growth rather than short-term investor gain. The ability to underpin the new JAED's mandate with rigorous analysis and solid metrics will greatly enhance the reputation of the new body and in turn promote Jordan as a destination of capital.

Although some work has been done on clusters in Jordan, the concept of competitiveness and the benefits of cluster-based policy are not sufficiently understood by policy-makers. Both Government and the private sector are eager to improve the competitiveness of Jordan but appear not to recognize that it is Jordanian *enterprises* that compete, both domestically and internationally, by upgrading their capabilities and increasing productivity while operating within developed and well-functioning clusters. Clusters encompass an array of linked industries, including suppliers of specialized inputs and support services. Clusters therefore extend to manufacturers of complementary products and to companies of industries related by skills, technologies or common inputs. They naturally include all related and supporting industries, and enterprises of all sizes. The value of cluster policy is to reinforce the development of all clusters and not to select so-called "winners" and protect them with special tax concessions or subsidies.

III. Specific Tasks of the Consultant(s)

Under this Scope of Work, the Consultant(s) shall perform, but not be limited to, the tasks specified under the following categories:

A. Background Reading Related to Understanding the Work and Its

Consultant(s) shall read, but is/are not limited to, the following materials related to fully understanding the work specified under this Consultancy:

1. Investment Task Force Executive Summary and Accompanying Report
2. Strategic Plan of the Ministry of Industry and Trade
3. TIJARA Draft Plan
4. AMIR 1 "Investor Targeting Strategy for the Investment Promotion Corporation"
5. AMIR 2.0 presentations on JAED and implementing agencies
6. AMIR 2.0 Pharmaceuticals Cluster Analysis and template for Porter' model.
7. AMIR 2.0 Backward Linkages, Enterprises Connections Program Pilot Assessment
8. AMIR 2.0 Preliminary Research on the Medical Services Cluster

B. Background Interviews Related to Understanding the Work and Its

The Consultant(s) shall interview, but is/are not limited to, the following individuals or groups of individuals in order to fully understand the work specified under this Consultancy:

1. Steve Wade, Chief of Party, AMIR 2.0 Program
2. Charles Krakoff, PSPI Team Leader, AMIR 2.0 Program
3. Barry O'Connell, IVP Sub-Component Leader, AMIR 2.0 Program
4. HE Dr Salah Al-Bashir, Minister of Industry and Trade
5. HE Dr Faleh Al-Nasser, Minister of Health
6. Jim Barnhart and Jamal Al-Jabiri, USAID

C. Tasks Related to Achieving the Consultancy's Objectives.

The Consultant(s) shall use his/her education, considerable experience, and additional understanding gleaned from the tasks specified in A. and B. above to:

1. Review the information and data contained in the preliminary research work on Medical Services Cluster in Jordan.
2. Review international and regional publications to compare key features of the Jordanian product to other similar economies.
3. Conduct an in-depth qualitative research effort for the different participants in the cluster to include the health care services providers, key participants in the related sectors, and key individuals in the different associations and ministries related to this sector (MOH). A suggested table for these interviews is included in the preliminary research (p.15).
4. Review laws and regulations related to the sector, mainly the private hospitals regulations, health law and other laws that have a direct affect on the product (ibid. p.14).
5. Analyze all existing and gathered information and determine the cluster's SWOT's and highlight major findings.
6. Validate these findings with MOH and other key individuals to reach consensus and bring the different parties on board through either a stakeholders' workshop or one to one meetings.
7. Develop a strategy that addresses the key issues and findings of the research effort. Validate same with key stakeholders.
8. Develop a near-term and intermediate-term action plan to implement this strategy.
9. Draw clear and practical policy recommendations aimed at improving the cluster's chances of increasing medical services exports.
10. Draft a timed performance agenda for JAED/MIT/MOP/MOH that will enable Jordan to monitor the success of (and if necessary nuance) policies and strategies for the cluster in future.

IV. Time frame for the Consultancy.

Unless otherwise specified, the following time frame will govern the timing for the completion of this Consultancy:

	Start	LOE	To Post	From Post	Field Work	3rd Country	U.S.A.
Mihir Desai		30	1 days	1 days	23 days	0 days	5 days
Hana Dajani		22	1	1	20	0	0

Health Care/Policy exp. 8 1 1 6 0 0

V. LOE for the Consultancy.

This Consultancy will require the effort of the following consultants:

<u>Consultant Name</u>	<u>Travel</u>	<u>Field</u>	<u>U.S.</u>	<u>3rd</u>	<u>Total</u>
Mihir Desai	2	23	5	0	30
Hana Dajani	2	20	0	0	22
Health care	2	6	0	0	8
<i>Subtotal</i>	6	49	5	0	60

VI. Consultancy Qualifications

The Consultant(s) shall have the following minimum requirements:

1. Educational Qualifications

- Master's Degree or higher in the area of economics or public policy from a recognized international university.

2. Work Experience Qualifications

- At least 6 years international experience in enterprise development, export and investment development, competitiveness and related areas
- Practical and theoretical expertise in a wide range of areas including:
 1. trade and industrial policy appraisal and reform
 2. enterprise development
 3. cluster analysis

3. Health Care Strategist

- Practical and theoretical experience in setting Strategies for Health care sector in similar economies.
- Experience in marketing and packaging of Health care Services

Annex C

References

Institution	Name
Ministry of Health	Dr. Rateb Hinawi
Ministry Of Industry and Trade	H.E. Dr. Salah Basheer Mr. Aref Al Farra
AMIR Program	Ms. Tania d' Allonnes Mr. Chip Krakoff Mr. Barry O'Connell
Private Hospital Association	Dr. Mahomoud AlTaher Ms. Haifa Kadoumi
Arab Bank Center for Scientific Research	Mr. Tayseer Wahbeh
Palestine Hospital	Dr. Nasri Khoury
Private Clinic	Dr. Aboud Abu Khadra
Ministry of Planning	Mr. Naseem Rahahleh
Association of Medical Equipment and Pharmaceuticals Exports	
Ministry Of Higher Education	Mr. Yasser Moumani Department of research and statistics
Ministry of Tourism and Antiquities	Mr. Hiader Qussos
Jordan Investment Bureau	Ms. Marwa Qasem Mr. Adnan
Insurance Regulatory Commission	Mr. Irsheed Tyab Advisor Health and Life insurance
Divan Tours	Mr. Habeeb Abu Sitoh
Social Security Department	Public Relations and statistics Section

References:

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2. Private Hospitals in Jordan. Summary of Findings and Recommendations. The Arab Center for Scientific Research. April, 2002.
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6. The Health Sector Study. Hashemite Kingdom of Jordan. A World Bank Country Study, 1997.
7. The Annual Statically Report on Higher Education in Jordan for the year 2000/2001.
8. Department of Statistics. Survey for Arrivals and Departures, Purposes of Visit, 1998.
9. Jordan Budget Law for the year 2002. Ministry of Finance, Department of Budget.
10. Statistical Year Book. Department of Statistics- Year 200

